ELECTRICAL ENGINEER

FACE RECOGNITION USING INFRARED IMAGING
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This study investigated an infrared (IR) face recognition system using an uncooled IR camera. A computer-based image collection set-up was designed and used to create a small database of 420 facial images, from 14 volunteers. Manual and automated facial image cropping routines were implemented. Two linear approaches for the dataset dimension reduction and classification were implemented and their resulting classification performances compared: PCA-based and LDA approaches. Results show that the best PCA-based average classification performance is equal to 92.22% while the LDA-based classification performance is equal to 99.40%. These results successfully show that an uncooled IR camera may be used to discriminate between individual subjects obtained from a small database collected under a very controlled environment.

KEYWORDS: Face Recognition, Classification, PCA, LDA, IR, Infrared, Eigenvectors